

Issue List and Work Plan for the  
1998 Triennial Review of the  
Water Quality Control Plan for the Tulare Lake Basin

Introduction:

To meet requirements of Section 303(c) of the Federal Clean Water Act and Section 13240 of the California Water Code, the Central Valley Regional Water Quality Control Board reviews the water quality standards contained in the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) every three years. This Triennial Review (TR) consists of conducting a public workshop to receive comments on water quality problems in the Basin and preparing a work plan which describes the actions the Board may take over the next three years to investigate and respond to the problems. Implementation of the work plan depends upon the Board's program priorities, resources, and other mandates and commitments. Crucial to successful implementation of the actions is adequate support of the Board's Basin Plan activities.

The Board began its 1998 Triennial Review for the Tulare Lake Basin Plan by providing a 45-day public notice, culminating in a public workshop, to solicit comments on water quality problems. The public notice (Attachment A) contained a brief description of some problems identified by staff. The notice was mailed to the 684 entities on the Basin Plan mailing list and published for one day in each of the four major newspapers covering the Tulare Lake Basin area (Attachments B and C).

The public workshop was held during the regularly scheduled Board meeting on 23 October 1998 to receive oral comments. Attachments D and E are copies of the official agenda and minutes, respectively, of the 422nd meeting of the Board at which the TR public workshop was held. Comments submitted after the public workshop were also considered in this review. The Board received a total of ten comments (Attachment F). Responses to these comments are contained in Attachment G.

The issues listed below reflect the water quality problems identified from public comments received during the review period and staff knowledge about problems in the Basin. The Board does not propose to proceed directly with amendments to the Basin Plan as a result of this TR. The proposed actions consist of recommended investigations to determine the following:

1. Whether a problem exists at all.
2. The extent, source, frequency, duration, and magnitude of the problem.
3. Whether the problem can be resolved through a change in the way the Board implements, enforces or otherwise gains compliance with existing standards.
4. Whether the problem must be resolved through amending the Basin Plan.

Two levels of actions are specified. Primary Actions represent the staff's best judgment about what can be done from FY 98/99 through FY 99/00 to address the issue with available resources. Augmented

Actions depend on more resources becoming available. The priority for each issue indicates the order staff intends to address the issues.

Resources to support basin planning activities are very limited. The Regional Water Board annual budget to support basin planning activities is 1.5 PYs. From this resource, the Regional Water Board must conduct triennial basin plan reviews and prepare and propose amendments to the two Basin Plans that cover the Region. The FY 98-99 allocation will be exhausted conducting the two triennial reviews. A new triennial review will need to be completed three years from now. This leaves 1.5 PYs for 2 years (the two years between Triennial Reviews) to consider issues that may warrant revisions to the two Basin Plans. Therefore, with existing resources, only a small portion of the high priority issues can be addressed. For some high priority issues, resources from other sources have been and can be used for some of the pre-basin planning activities. For example, resources from the Bay Protection and Toxic Cleanup Program were used to monitor and develop cleanup plans for mercury and dissolved oxygen. These cleanup plans will form the basis for a Total Maximum Daily Load Allocation (TMDL). Portions of the TMDL need to be incorporated into the Basin Plan. The Basin Plan amendment activities associated with incorporating the TMDL into the Basin Plan are not eligible for funding from most other funding sources.

The Regional Water Board has resources from other sources that can complement Basin Planning activities. For example, the Regional Water Board receives resources from US EPA to work on nonpoint source implementation programs. Funding from this program cannot support Basin Plan amendment activities, but it can support implementation of provisions already in or added to the Basin Plan. Likewise, funding from US EPA supports a limited amount of TMDL development activity, but the inclusion of TMDL elements into the Basin Plan must be supported from the limited Basin Planning allocation. A special budget allocation has supported development of TMDLs for selenium in the San Joaquin River Basin. Only the activities directly related to incorporating elements of the TMDLs into the Basin Plan should be considered for funding from the limited Basin Planning allocation. The highest priority for use of the limited amount of Basin Planning resource should be to complete or initiate high priority work that cannot be funded from other sources. With existing resources, only a few of the highest priority issues can be addressed.

Based on the staff analysis, the following issues have been identified as high priority.

- Groundwater Assessment - Issue No. 1
- Groundwater Quality Objectives for Salinity - Issue No. 2
- Electrical Conductivity Effluent Limit - Issue No. 3
- Salinity in the Lower Kings River - Issue No. 4
- Nitrates - Issue No. 12

The Regional Water Board is identified as the funding source for a Primary Action if the issue is already funded in the FY 98/99 budget. The State Water Board is identified as the funding source for Primary

The issues selected for the 1998 TR represent major water quality concerns derived from what is currently known about them. Knowledge about pollution problems may change significantly from one year to the next.

Discussion:

Many of the water agencies within the Tulare Lake Basin have groundwater management plans which include monitoring programs. Staff should work with the water agencies to share information in protecting water quality and implement a modified network that might meet Board needs. Water agencies and staff should identify areas within the Tulare Lake Basin where the groundwater is adversely impacted by salts and chemicals to the extent that the groundwater no longer supports all its beneficial uses. Where presence of salts and chemicals are due to nonpoint source impacts and the source is not clear, investigations should be done to identify potential sources of these contaminants and practices should be developed to mitigate these impacts. Where areas of the Basin are threatened with increasing salinity, practices should be developed to reduce these impacts.

Priority: High

Primary Action: Focus efforts on a key subbasin. Solicit assistance from local water agencies within the Kings Groundwater Subbasin by meeting with the agencies and stakeholders and explaining the purpose and need for a groundwater monitoring network. Form an advisory group for this groundwater subbasin. Decide on methodology to identify trends within the subbasin. Decide on list of desired constituents of interest. Implement methodology.

Implementation Requirements  
for proposed Primary Action:

- 1) Staff -- 0.6 PY for FY98-99, 0.8 PY for FY99-00, 0.8 PY for FY00-01
- 2) Contract(s) -- \$10,000 per year
- 3) Source(s) -- Regional Water Board and State Water Board

Augmented Action: The primary action will be expanded to include additional subbasins.

Implementation Requirements  
for proposed Augmented Action:

- 1) Staff -- 3.0 PY per year
- 2) Contract(s) -- \$50,000 per year
- 3) Source(s) -- State Water Board

## **Issue No. 2: Groundwater Quality Objectives for Salinity**

Discussion: The Basin Plan contains water quality objectives for control of salinity increases in groundwater. These objectives allow for what was believed to be reasonable increases in certain areas of the basin based on land use in these areas. These objectives have never been revisited for effectiveness or practicality. A study should be conducted on the appropriateness of the objectives.

Primary Action: Evaluation of the objectives must be deferred until a groundwater monitoring network is completed. In the meantime, the groundwater information and estimates used as a basis for the First Edition of the

Basin Plan will be revisited to make an updated prediction of what data from the groundwater monitoring network might show.

Priority:

High

Implementation Requirements  
for proposed Primary Action:

- 1) Staff -- 0.2 PY for FY98-99, 0.3 PY for FY99-00, 0.3 PY for FY00-01
- 2) Contract(s) -- \$0
- 3) Source(s) -- Regional Water Board and State Water Board

**Issue No. 3:**

**Electrical Conductivity Effluent Limit**

Discussion:

The Basin Plan contains electrical conductivity effluent limits for discharges of municipal and domestic, industrial, and oil field wastewaters. Municipal and domestic discharges are limited to the electrical conductivity (EC) of the source water plus 500 micromhos/cm.

Industrial dischargers are required to meet a limit of 500 micromhos/cm unless it can be demonstrated that allowing a greater net incremental increase in EC will result in lower mass emissions of salt and in conservation of water. Industrial dischargers are also allowed an exception if the increased electrical conductivity is due to an unavoidable concentration of organic dissolved solids from the raw food product. In both these exceptions, beneficial uses must still be protected.

Oil field dischargers are required to meet a limit of 1000 micromhos/cm unless the discharger can successfully demonstrate to the Regional Water Board in a public hearing that the proposed discharge will not substantially affect water quality nor cause a violation of water quality standards.

The Regional Water Board has been requested by municipal dischargers to revise the EC effluent limit in order to take into consideration water conservation measures. Suggestions from commenters were to regulate agricultural dischargers, develop an electrical conductivity credit for calcium, potassium, and magnesium, establish a discharge limit for total

pounds of salt in lieu of EC discharge requirement, and apply the 500  $\mu$ mhos/cm increase to receiving rather than source water.

Priority: High

Primary Action: The characteristics of the municipal wastewaters will be studied to determine typical mineral composition, sources of atypical salt concentrations and alternative salinity control measures. The reuse of certain salts as agricultural amendment will be evaluated as a potential credit. In addition, water conservation measures will be studied to determine the overall effect on electrical conductivity increase.

Implementation Requirements  
for proposed Primary Action:

- 1) Staff -- 0.1 PY for FY98-99, 0.2 PY for FY99-00, 0.3 PY for FY00-01
- 2) Contract(s) -- \$5,000 per year
- 3) Source(s) -- Regional Water Board and State Water Board

**Issue No. 4: Salinity in the Lower Kings River**

Discussion: The Lower Kings River cannot meet water quality objectives for salinity during drought periods. Additional studies are needed to adequately define the salinity problems and develop policies.

Priority: High

Primary Action: If drought conditions occur during this triennial review period, conduct studies to determine source of salinity problems, identify salinity impacts both locally and regionally, and develop potential mitigation measures.

Implementation Requirements  
for proposed Primary Action:

- 1) Staff -- 0.3 PY for FY98-99, 0.3 PY for FY99-00
- 2) Contract(s) -- \$5,000 per year
- 3) Source(s) -- Regional Water Board and State Water Board

**Issue No. 5: Dissolved Oxygen Objectives**

Discussion: The dissolved oxygen objective for Reach III of the Kings River (Pine Flat Dam to Friant-Kern) may not be achievable due to natural conditions. A study should be conducted to investigate this and establish more appropriate objectives, if necessary. Commenters have suggested that the dissolved oxygen objective for Reach III of the Kings River should be revised from a minimum of 9.0 mg/l to 7.0 mg/l.

Priority: Medium

Primary Action: None

Implementation Requirements  
for proposed Primary Action: None

Augmented Action: The Kings River Conservation District has supplied the dissolved oxygen monitoring for the powerhouse and for selected points within the affected reach. This information should be analyzed to determine the dissolved oxygen concentration which this reach can reasonably attain.

Implementation Requirements  
for proposed Augmented Action: 1) Staff -- 0.25 PY  
2) Contract(s) -- \$0  
3) Source(s) -- State Water Board

**Issue No. 6: Individual Disposal Systems**

Discussion: Many areas within the Tulare Lake Basin are not suitable for conventional septic tank/leachline systems according to the Guidelines for Waste Disposal from Land Developments. In these areas, the Basin Plan specifies a community system or a specially designed system. Other than requiring the submittal from a registered engineer, geologist, or sanitarian who is knowledgeable and experienced in the field of septic tank-leaching system design and installation, there are no guidelines. In 1994, the State Water Board assembled a Technical Advisory Committee (TAC) to consider the major water quality

problems resulting from onsite sewage disposal systems (OSDS) and the effectiveness and the efficiency of implementing the U. S. Environmental Protection Agency's management measures. The TAC identified several issues of concern including degradation of water quality resulting from the use of OSDS, inconsistent statewide standards for OSDS, inconsistent statewide regulatory approach for OSDS, and limited knowledge and acceptance of alternative technologies for OSDS. The TAC recommended adoption of local and regional policies and procedures for OSDS to protect beneficial water uses and development of numerical and narrative water quality objectives into statewide plans and policies to ensure compliance.

Areas in the Central Valley which may require modified guidelines are higher elevation areas with shallow soils and valley floor areas with high groundwater.

As the population of the state increases, more people are moving into subdivisions in foothill and higher elevation areas. Some of the foothill and higher elevation areas have slopes greater than 30% with less than one foot of soil cover. In these areas, county requirements vary with some counties allowing engineered alternatives and others prohibiting septic tank systems altogether. In most cases, county requirements do not reflect the potential cumulative impacts of dense installation of onsite sewage disposal systems in these areas.

On the valley floor, a problem may develop in some agricultural areas of the Basin owing to saturation of the soil when irrigation water along the valley trough is restricted from percolating through the soil profile. As the areal extent of this conditions expands, individual waste disposal systems in areas where community sewers are not an option may create surfacing waste and a public health problem.

The Regional Water Board should investigate both these potential problems and provide updated regional guidelines to assist county review of engineered systems.

Priority: Medium

Primary Action: None

Augmented Action: Gather information on conventional and engineered alternative individual waste disposal systems. Form advisory committee with

County Health Departments. Identify criteria for areas where conventional systems are likely to fail. Propose suitable guidelines for these areas.

**Implementation Requirements**

for proposed Augmented Action: 1) Staff -- 1.5 PY

2) Contract(s) -- \$0

3) Source(s) -- State Water Board

**Issue No. 7:**

**Riparian Corridor Protection Policy**

**Discussion:**

The Basin Plan does not include any sections on current regulatory activities in riparian corridors or recognize the importance of these areas to naturally filter runoff and provide habitat.

**Priority:**

Low

**Priority:**

Medium

**Primary Action:**

None

**Augmented Action:**

Provide a description of current regulatory activities in riparian corridors. Identify the benefits of these corridors. State the Regional Board's policies and recommendations for these areas.

**Implementation Requirements**

for proposed Augmented Action: 1) Staff -- 0.2 PY

2) Contract(s) -- \$0

3) Source(s) -- Regional Water Board and State Water Board

**Issue No. 8:**

**Tributary Language**

**Discussion:**

Clarification is needed from the tributary language which reads, "The beneficial uses of any specifically identified water body generally apply to its tributary streams. In some cases a beneficial use may not

be applicable to the entire body of water. In these cases the Regional Water Board's judgment will be applied."

Priority: Low

Primary Action: None

Implementation Requirements  
for proposed Primary Action: None

Augmented Action: Review the tributary language to identify ambiguities and revise accordingly.

Implementation Requirements  
for proposed Augmented Action: 1) Staff -- 1.0 PY  
2) Contract(s) -- \$0  
3) Source(s) -- State Water Board

**Issue No. 9: TMDLs**

Discussion: The Tulare Lake Basin has three waterbodies on the 303(d) list. The San Carlos Creek was listed for mercury, the Panoche Creek was listed for sediments, selenium and mercury, and the Lower Kings River was listed for molybdenum, toxaphene and electrical conductivity. All TMDLs are scheduled to start January 2004. However, if funding were available, the Board could consider plans for early development and implementation of TMDLs for the listed waterbodies in the Tulare Lake Basin.

Priority: Medium

Primary Action: None

Implementation Requirements  
for proposed Primary Action: None

Augmented Action: Conduct monitoring for listed constituents, develop and calibrate water quality models characterizing the system, calculate the total constituent loads the streams may handle, allocate loads to the sources.

Implementation Requirements

for proposed Augmented Action: 1) Staff -- 6.0 PY

2) Contract(s) -- \$20,000

3) Source(s) -- State Water Board

**Issue No. 10:**

**Confined Animal Facilities**

Discussion:

Exempt confined animal facilities from the requirement that new manure retention ponds be designed, constructed, and operated to ensure that the invert of the pond will be at least 5 feet above the highest elevation of underlying groundwater for facilities where it is shown that (1) the quality of underlying groundwater is poorer, for each constituent of concern, than that of the wastewater, and (2) that the discharge does not cause the poor quality ground [water] to adversely impact downgradient groundwater quality.

Priority:

Low

Primary Action:

None

Implementation Requirements

for proposed Primary Action:

None

Augmented Action:

Modify basin plan.

Implementation Requirements

for proposed Augmented Action: 1) Staff -- 0.25 PY

2) Contract(s) -- \$0

3) Source(s) -- State Water Board

**Issue No. 11:**

**Salt Loads**

Discussion:

In order to properly develop management measures for potential salinity sources, an understanding is needed of the salt storage which is occurring in the basin. The Department of Water Resources has

completed calculations of the salts which are imported and exported through the water projects but has not included salts which are imported and exported through food sources (both for human and animal consumption) and soil amendments.

Priority: Low

Primary Action: None

Implementation Requirements  
for proposed Primary Action: None

Augmented Action: Work with the county farm advisors, city and county planners, and the Department of Water Resources to quantify the salts which are imported as food and soil amendments and the salts exported as products from the basin. Calculate the salts which are stored in the basin. Develop strategies to reduce the salt imports or export the excess salt.

Implementation Requirements  
for proposed Augmented Action: 1) Staff -- 1.0 PY  
2) Contract(s) -- \$0  
3) Source(s) -- State Water Board

**Issue No. 12: Nitrates**

Discussion: A 1988 State Water Resources Control Board report to the State Legislature on Nitrate in Drinking Water (SWRCB, 1988) reported that 10 percent of the samples in the Storet database were above the primary Maximum Contaminant Level (MCL) (10 mg/L nitrate-nitrogen). A geographical depiction of wells with elevated levels of nitrate (greater than 4.5 mg/L nitrate-nitrogen) showed the highest densities in the Central Valley are along the Highway 99 corridor and primarily around populations centers (e.g. Modesto, Yuba City, Fresno, and Bakersfield). Since 1980, over 200 municipal water supply wells have been closed in the Central Valley due to exceedance of the nitrate MCL (RWQCB, 1996).

The actual nitrate groundwater contamination situation may be much greater than realized by the SWRCB geographical depiction and statistics of closed wells. The groundwater nitrate database is biased with respect to large water systems. Domestic wells with less than 15 connections are not subject to state oversight and those with less than 5 connections are not subject to any monitoring requirements. These small systems are the most vulnerable to contamination by nitrate. The wells are generally placed as shallow as possible due to limited resources of small and private systems and because only limited yields are required. Large water supply systems, on the other hand, with greater economic resources, generally tap deeper aquifers where there is more reliable water supply and quality. Additionally, small systems are more likely located in agricultural areas and be affected by agricultural activities such as crop and confined animal production. Septic systems, also located in rural areas, are also a principal source of groundwater contamination with nitrate. Additionally, as nitrate moves into the deeper aquifers, more water systems will become affected. Recent monitoring by the US Geological Survey of 60 household wells located in agricultural areas found 30 percent of the wells exceeded the drinking water standard.

The primary health concerns with the consumption of water with elevated nitrate is the condition known as methemoglobinemia. Methemoglobinemia, commonly known as the blue baby syndrome, is the interference by nitrate to the absorption of oxygen by hemoglobin. Infants, younger than 6 months, are most susceptible and the oxygen deficit in the blood stream produces blue coloration of the lips and skin and hence the term blue baby. More severe cases results in death. The health impacts to infants subject to chronic oxygen deprivation, as a result of nitrate consumption in drinking water, which do not result in mortality are unknown. The condition is often misdiagnosed and is believed to be under reported. A survey of hospital discharge records by Department of Health Services (DHS) between 1983 and 1995 revealed 97 cases of methemoglobinemia in children younger than one year. The database, however, was incomplete and it could not be determined how many cases were attributable to consumption of nitrate contaminated groundwater. Other chemicals that can lead to these conditions are aerosols deodorizer and certain pharmaceuticals.

Water systems impacted with nitrate exceeding the MCL must be blended with uncontaminated water, treated by ion exchange, or closed. The 1988 State Water Board report to the legislature stated that the

USEPA estimated the annual increase in household water bill to treat contaminated water at between \$77 to \$340 for water systems of 100 to 1,000,000 people served.

Areas of intensive crop production, especially crops with a high nitrogen demand (e.g. vegetables), are known to have or are suspected of having nitrate at elevated levels in the groundwater (e.g. Salinas Valley). Groundwater in crop production areas become contaminated with nitrate when nitrogen fertilizers are applied at rates in excess of the utilization capacity by the crop and along with inefficient irrigation or high rainfall leach the nitrate to groundwater. Other factors which contribute are a shallow aquifer, the absence of a restricting layer to vertical migration of nitrate, permeable soils and poor well construction.

In 1993, the Regional Water Board conducted a study of groundwater below five "typical well run" dairies in the vicinity of Hilmar. The average nitrate concentration was 49 mg/L and a maximum value of 250 mg/L was detected. This is well above the drinking water standard of 10 mg/L. Conditions were conducive to migration of nitrates to groundwater as soils are permeable (sandy) and the water table is shallow (4 to 25 below ground surface). There are 1600 dairies in the Central Valley with approximately 1 million head of cows. Regulatory programs are focused at protecting surface waters. At present the Board is requiring groundwater monitoring at approximately 20 dairies. However, there are no sites undergoing remediation.

The Basin Plan recognizes the contamination of groundwater by nitrate as a critical issue and recommends that the State Water Board take the lead in developing programs for the protection of groundwater from nitrate contamination. In 1995 the State Water Board assembled committees of technical advisors to review the Non Point Source Management Plan and to advise the State Water Board with respect to compliance with the federal Coastal Zone Management Act. Several committees dealt, in one form or another, with the issue of nitrate in groundwater. However, no new initiatives resulted from this process. With respect to septic systems, the Regional Water Board has dealt with these on a case-by-case basis by prohibiting discharge from a service area which has become problematic. Twenty six prohibitions have been instituted by the Regional Water Board. The Basin Plan contains guidelines for use of septic tank systems in developments. Staff has encouraged counties to adopt and enforce ordinances that are

consistent with the guidelines. With respect to nitrate impacted groundwater from crop production, no programs are in place and no enforcement cases have been brought before the Board.

Priority: High

Primary Action: Identify areas impacted with nitrates, identify the source of the nitrates, develop strategies to reduce impacts.

Implementation Requirements  
for proposed Primary Action: 1) Staff -- 0.3 PY for FY98-99, 0.4 PY for FY99-00, 0.4 PY for FY00-01

2) Contract(s) -- \$10,000 per year

3) Source(s) -- Regional Water Board and State Water Board

Augmented Action: In absence of a uniform statewide program for dealing with nitrate in groundwater, the Regional Water Board should develop a program to address this issue.

Alternatively, staff could review the situation, discuss options with stakeholders and come back to the Regional Water Board with a recommendation on how best to address this issue. This report would require 1 PY to prepare. It could be completed in one year.

Implementation Requirements  
for proposed Augmented Action: 1) Staff -- 2.0 PY

2) Contract(s) -- \$50,000

3) Source(s) -- State Water Board

### **Issue No. 13: Sediments**

Discussion: With each rainfall, the surface waters of the basin run brown implying that there is a large quantity of sediments in the water. No review of potential sediment sources has been done. Improperly graded subdivisions are believed to contribute large quantities of sediment as do eroding roads, grazing, and other activities. These sediments may be impairing the municipal, recreational and habitat beneficial uses of

affected waterbodies. The Regional Water Board should investigate these issues.

Priority: Low

Primary Action: None

Implementation Requirements  
for proposed Primary Action: None

Augmented Action: In accordance with the Erosion/Sedimentation guidelines in the Basin Plan, conduct a review of potential sedimentation sources and develop management practices as necessary.

Implementation Requirements  
for proposed Augmented Action: 1) Staff -- 2.0 PY  
2) Contract(s) -- \$0  
3) Source(s) -- State Water Board

RESPONSE TO COMMENTS  
1998 TRIENNIAL REVIEW  
OF THE  
WATER QUALITY CONTROL PLAN FOR THE  
TULARE LAKE BASIN

Commenters:

1. Mr. Robert E. Beehler, Field Office Manager, United States Department of the Interior, Hollister
2. Mr. Jeffrey B. Misenhimer, Wastewater Superintendent, City of Tulare, Tulare
3. Ms. Rosa Lau-Staggs, Environmental Control Officer, and Ms. Judi Tapia, Supervising Environmental Control Officer, City of Fresno, Wastewater Management Division, Fresno
4. Mr. Lynden Garver, Assistant Manager, Kings River Conservation District, Fresno
5. Mr. David L. Stringfield, Principal, and Ms. Penny L. Carlo, Carollo Engineers, Fresno
6. Mr. Lewis R. Nelson, Public Works Manager, City of Visalia, Visalia
7. Mr. Raul M. Rojas, Public Works Director, City of Bakersfield, Bakersfield
8. Dr. David W. Kay, Senior Environmental Specialist, Southern California Edison, Rosemead
9. Mr. Terry Oda, Chief, United States Environmental Protection Agency, Region IX, CWA Standards and Permits Office, San Francisco
10. Mr. Scott Smith and Mr. Warren Gross, BSK & Associates, Fresno

Following are the responses to comments received regarding the 1998 Triennial Review of the Basin Plan. Comments are summarized in italics.

Mr. Robert E. Beehler, Field Office Manager, United States Department of the Interior, Hollister

1. *Develop region-wide nonpoint source management measures.*

The *Water Quality Control Plan for the Sacramento and San Joaquin Rivers* and the *Water Quality Control Plan for the Tulare Lake Basin* contain significant descriptions of programs that are implemented to address nonpoint source problems. Both Basin Plans also reference the statewide Nonpoint Source Management Plan which describes the statewide framework for working on nonpoint source problems. The statewide nonpoint source management plan is currently being updated, as part of the process of addressing Coastal Zone Reauthorization Act requirements. Both Basin Plans acknowledge that nonpoint source problems are the most significant water quality problems that need to be addressed. Specific nonpoint source concerns have been identified as priority issues in the triennial review workplan. As these issues are worked on, specific management measures will be developed. If there are other nonpoint source issues which have not been identified, the Bureau of Land Management should submit the information supporting those concerns so that staff may evaluate the issues for the triennial review.

2. *Develop riparian corridor protection policy.*

The Regional Board issues water quality certification or permits for dredged and filled materials that can contain conditions that protect riparian habitat but has no general policies or recommendations on riparian corridors. Riparian corridors serve as natural filters as well as habitat and the Basin Plan could recognize and set forth policies to protect these areas. This has been added as a low priority issue on the triennial review workplan.

3. *Develop water quality objectives to protect rare, threatened or endangered species beneficial use.*

The Basin Plan designates certain waters as suitable for supporting habitat necessary for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered. However, the Basin Plan has not identified special water quality objectives to protect those uses and staff is unaware of any special needs. The Bureau of Land Management staff should submit any information that they are aware of that indicates that rare, threatened or endangered species require water quality objectives that are different than those contained in the Basin Plan. Staff will make a determination whether to add this item to the priority list if information is submitted.

4. *Develop abandoned mine policy.*

Abandoned mines have not been identified as a significant source of pollutants in the Tulare Lake Basin. However, this is a recognized water quality concern in the Sacramento River watershed and has been added as an issue in the triennial review for the *Water Quality Control Plan for the Sacramento and San Joaquin Rivers*. Any policies or programs developed as a result of this issue within the Region will likely be extended to include the Tulare Lake Basin.

5. *Involvement in any TMDL planning and analysis for Panoche and San Carlos Creeks.*

Any TMDL planning and analysis for Panoche and San Carlos Creeks will involve the U. S. Bureau of Land Management. As the Regional Board is not committed to starting work on the TMDL until 2004, this has been added as a low priority issue on the triennial review workplan.

Mr. Jeffrey B. Misenhimer, Wastewater Superintendent, City of Tulare, Tulare

6. *Develop an electrical conductivity credit for calcium, potassium, and magnesium.*

An electrical conductivity effluent limit issue has been added to the triennial review workplan.

7. *Establish a limit for total pounds of salt discharge requirement in lieu of EC discharge requirement.*

An electrical conductivity effluent limit issue has been added to the triennial review workplan.

Ms. Rosa Lau-Staggs, Environmental Control Officer, and Ms. Judi Tapia, Supervising Environmental Control Officer, City of Fresno, Wastewater Management Division, Fresno

8. *Designate agricultural runoff a point source discharge.*

Federal regulations define return flows from irrigated agriculture and agricultural storm water runoff as nonpoint sources for the purpose of issuing NPDES permits [40 CFR 122]. State regulations allow the Regional Board to place requirements on any discharge of wastes. However, the effect of specific agricultural management practices, such as growing corn versus almonds, are not well understood and no plans have been developed to regulate these discharges. The Regional Board addresses this type of activity on an individual basis as pollution problems are found. Agricultural practices will be reviewed as part of the Groundwater Assessment issue and, if needed, policies for regulation of agricultural runoff will be developed.

9. *Hold municipal uses to [salinity] standards relative to their contribution to the [basinwide salt] problem.*

Salinity standards and effluent limits consider salinity increase through reasonable use and varies by type of discharger. As assessment of salinity increases due to use has been included in the Electrical Conductivity Effluent Limit issue.

10. *Disallow the practice of putting new agricultural lands into production until a solution to the salt load issue is found.*

The California Water Code does not give the Regional Board authority over land use. In addition, agricultural land use appears to be declining as information supplied by the Fresno Wastewater Management Division from the Agricultural Census indicates that the acreage of farms, cropland, harvested cropland and irrigated lands decreased from 1982 to 1992.

11. *It is unclear from the Basin Plan whether the 4 micromhos per cm [maximum average annual increase in salinity measured as electrical conductivity for the Kings River Hydrographic Unit] is an average hydrographic unit allowable increase or a point source limit as it is currently being applied. This should be clarified in the Basin Plan reevaluation.*

The basin plan recognizes that the Tulare Lake Basin is a closed basin and in accordance with State Board Resolution 68-16 allows a maximum incremental increase in electrical conductivity. This groundwater quality objective applies generally to the entire study area. However, to ensure that Basin groundwater is not degraded over this maximum, waste discharge requirements include this as the water quality objective at the point of compliance. A higher incremental increase may be allowed for a specific area within the basin if a demonstration is made that the discharger has implemented best practicable treatment or control of the discharge, the subarea is properly managed by the discharger, and it is found to be in the public interest.

12. *The maximum average annual increase in salinity policy should be removed until electrical conductivity background information of all areas and activities is updated.*

Removal would require an amendment that must be preceded by an investigation. An investigation is already part of the proposed Groundwater Quality Objectives for Salinity issue. A mechanism to consider specific cases in the interim already exists and explained in response to Comment No. 11.

13. *Extensive sampling of background EC is needed to determine the average annual increase in salinity. Survey should include all land users, point and nonpoint source dischargers, to determine sectors and activities that contribute salt loading to the Tulare Lake Basin.*

Comment is noted and has been included in the Groundwater Assessment issue.

14. *Reevaluate the EC limit for wastewater treatment facilities. It seems that municipal treatment facilities are shouldering an unfair portion of the mitigation efforts in relation to their contribution to the overall problem.*

The First Edition of the Basin Plan placed the burden of implementing the Basin Plan on municipal and industrial treatment facilities. For nonpoint sources, the First Edition promoted the formation of an Agricultural Water Quality Management Group which would be locally controlled and would assist in the evaluation of data collection programs, agricultural drainage water disposal, overdraft elimination, and salinity control in the groundwater. This group was unsuccessful in developing any programs. Current direction regarding nonpoint sources favors formation of watershed groups which would involve all stakeholders. The Groundwater Assessment issue proposed by staff in the workshop

notice moves in this direction. The municipal treatment facilities must become involved in the watershed groups to resolve this issue.

15. *Characterization of EC contributors should be done and a surcharge should be assessed to fund the valley drain based on salt load contribution.*

The California Water Code does not give the Regional Board the authority to surcharge dischargers for the purpose of building a valleywide drain. However, the Regional Board supports any efforts to construct a valleywide drain to remove salt-laden wastewater from the Basin under the following conditions:

- Σ All toxicants would be reduced to a level which would not harm beneficial uses of receiving water.
- Σ The discharge would be governed by specific discharge and receiving water limits in an NPDES permit.
- Σ Long-term continuous biological monitoring would be required.

16. *Reevaluate the EC limit for wastewater treatment facilities by applying the 500 mmhos/cm increase to receiving rather than source water.*

The 500 mmhos/cm increase to source water reflects that water usage leads to some EC increase. However, the State's anti-degradation policy states that "[w]henver the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies." Applying the increase of 500 mmhos/cm to receiving water rather than source water would eventually render most groundwater unusable, would unreasonably affect the present and anticipated beneficial use of such water and is be unjustifiable under the State's anti-degradation policy.

17. *Reevaluate the EC limit for wastewater treatment facilities to take into consideration water conservation measures.*

The EC limit should allow for reasonable use of water. If measures to improve efficiency of water use by domestic users has resulted in consistently less water use and more concentrated wastewater, the EC limit should reflect this. Water conservation measures will be investigated as part of the the electrical conductivity effluent limit issue in the triennial review work plan.

18. *Add provisions to the Basin Plan to describe the mechanism to obtain interpretation of the Basin Plan and to challenge those interpretations.*

The usual mechanism to obtain interpretations and to challenge basin plan interpretations is either through the waste discharge permitting process or through the Triennial Review process. In the permitting process, staff interpretations may be disputed before the Board at the time of adoption of the permit. If unsatisfied with the position of the Board, the permit may be appealed to the State Board. For interpretations which are outside of the permitting process, interested parties may request clarifications and modifications of Board policies at the time of the Triennial Review. Policy is either clarified in the responses or included as issue for further investigation in the Triennial Review priority list. As Regional Board resources permit, these issues will be addressed. Issues

brought up between triennial reviews are noted but, because of limited staff resources, can not be addressed prior to the next triennial review.

19. *Provide an update of the status of the triennial review items from 1995.*

- I. Salinity in the Lower Kings River: This continues to be an issue, but has a more narrow focus than before. The River has problems meeting water quality objectives during dry and critically dry years. Therefore, studies identifying the causes of exceedances need to be conducted during the appropriate environmental conditions. In the meantime, sufficient information exists to identify high salinity discharges into the Kings River and actions may be taken to remove these discharges.
- II. Beneficial Uses of Surface Waters: No work was done in this on this low priority issue.
- III. Ground Water Monitoring Network: This continues to be an issue but no work has been performed to date.
- IV. Ground Water Contamination: This was merged with the Ground Water Monitoring Network issue to form the Groundwater Assessment issue proposed in the current Triennial Review. No work has been performed to date.
- V. Ground Water Quality Objectives for Salinity: This continues to be an issue that depends on implementation of the Ground Water Monitoring Network, so no work has been done yet.
- VI. Dissolved Oxygen Objectives: Information submitted by the Kings River Conservation District indicates that Reach III (Pine Flat Dam to the Friant-Kern Canal) of the Kings River cannot meet dissolved oxygen objectives. The specific conditions when this occurs must be identified and the objectives should be revised accordingly.

Mr. Lynden Garver, Assistant Manager, Kings River Conservation District, Fresno

20. *Additional studies regarding the salinity in the Lower Kings River are unnecessary. Sufficient information exists to identify the high salinity dischargers and issue cease and desist orders.*

The poor quality of the Lower Kings River during dry and critically dry years may not be due entirely to the high salinity dischargers. Therefore, additional studies are proposed for appropriate type water years. In the meantime, the Regional Board may proceed with actions to remove the high salinity discharges from the River.

21. *Most local water agencies who adopted groundwater management plans are only monitoring groundwater levels and perhaps electrical conductivity. More complex laboratory analysis will be cost prohibitive and would require a long-term commitment by the Regional Board, local agencies, and property owners.*

The most critical Regional Board need is a monitoring network for electrical conductivity. More complex needs and their funding are a concern that has been incorporated into the Groundwater Assessment issue.

22. *Most monitoring programs are designed to use agricultural production wells and the construction details may not be available.*

The Regional Board considers the most important component of the groundwater monitoring network to be tracking of trends in electrical conductivity. Production wells that are used in the

network will need to be evaluated for suitability for this purpose. This concern has been incorporated into the Groundwater Assessment issue.

23. *Seasonal and annual fluctuations of the groundwater level may result in a variance in the concentration of many of the chemicals which the Regional Board may wish to monitor.*

The Regional Board agrees that fluctuations in groundwater level may result in a variance in water quality. This is part of the Groundwater Assessment issue.

24. *Most agencies and land owners will want to know the ramifications of a groundwater quality monitoring program before they agree to cooperate.*

This concern is understood and will need to be addressed as part of the Groundwater Assessment issue.

25. *The issue of re-investigating the salinity objectives should be given very low priority if not removed from the plan entirely. Finding a method of salt removal from the valley should be given high priority.*

A method of salt removal from the valley is also an issue with other programs, such as the Central Valley Improvement Program. The Regional Board believes that a valleywide drain to carry salts out of the valley is the best technical solution to the water quality problems of the Tulare Lake Basin. Until the drain is constructed, salinity increases in the water supply should be minimized to extend the life of the water resources. Reevaluation of the groundwater quality objectives for salinity is included as part of the implementation plan for controlling salinity in the Basin.

26. *If the issue of reevaluating the salinity objectives for groundwater is to reduce the rate of salt accumulation, a method of monitoring the progress is needed.*

The Regional Board recognizes that a groundwater monitoring network is needed to monitor the rate of salt accumulation in the Basin. This is part of the Groundwater Assessment issue.

27. *If groundwater objectives for salinity are not met, what action would be provided under the plan.*

The implementation program developed to manage the rate of salinity increase would need to be reevaluated and, if practicable, modified to better control the salinity increases. If all practicable measures had been implemented the objectives would need to be reevaluated. This issue would be part of a future Triennial Review.

28. *The dissolved oxygen objective for Reach III of the Kings River should be a minimum of 7.0 mg/l.*

This comment has been noted and has been incorporated into the Dissolved Oxygen Objectives issue.

Mr. David L. Stringfield, Principal, and Ms. Penny L. Carlo, Carollo Engineers, Fresno

29. *Calcium, magnesium, and potassium ions are beneficially used by agriculture so an EC credit should be allowed for municipal discharges with these constituents.*

See response to Comment #6.

Mr. Lewis R. Nelson, Public Works Manager, City of Visalia, Visalia

30. *Same comment as #29.*

See response to Comment #29.

Mr. Raul M. Rojas, Public Works Director, City of Bakersfield, Bakersfield

31. *Same comment as #29.*

See response to Comment #29.

Dr. David W. Kay, Senior Environmental Specialist, Southern California Edison, Rosemead

32. *The WARM and COLD beneficial uses for the Kern River above and below Lake Isabella should be clarified to acknowledge temporal shifts in natural instream water temperatures.*

By combining both WARM and COLD, the Regional Board recognizes that these reaches may shift from supporting cold water habitat during certain parts of the year to supporting only warm water habitat during other parts of the year. In addition, the Basin Plan states that “[i]n some cases a beneficial use may not be applicable to the entire body of water. In these cases the Regional Water Board’s judgment will be applied.” Since the designated beneficial uses for the Kern River in, above and below Lake Isabella are WARM and COLD, Southern California Edison’s concerns are met and no changes to the beneficial uses are needed.

Mr. Terry Oda, Chief, United States Environmental Protection Agency, Region IX, CWA Standards and Permits Office, San Francisco

33. *Supports the Groundwater Assessment issue as a high priority.*

This issue has been prioritized accordingly.

34. *The Groundwater Assessment should address salt accumulation from agricultural drainage waters and explore alternative discharge strategies.*

This concern has been incorporated into the Groundwater Assessment issue.

35. *Regulatory programs dealing with discharge contributions from dairies should also be integrated into the assessment.*

This concern has been incorporated into the Groundwater Assessment issue.

36. *Supports the Individual Disposal Systems issue as a high priority.*

This issue has been is of medium priority relative to the salt issues and is not identified for funding.

37. *Development of guidelines for individual disposal systems should include a review of county efforts to regulate engineered systems.*

This is included in the scope of the Individual Disposal Systems issue.

38. *Clarification is needed for the tributary language which reads, "The beneficial uses of any specifically identified water body generally apply to its tributary streams. In some cases a beneficial use may not be applicable to the entire body of water. In these cases the Regional Water Board's judgment will be applied."*

While added to the priority list, this language has been implemented without problems for years and is of low priority for revision.

39. *The Board should consider plans for development and implementation of TMDLs for the Tulare Lake Basin.*

Since the TMDLs for the Tulare Lake Basin have already been scheduled to start in 2004, this concern has been added as a medium priority issue on the triennial review work plan.

40. *EPA may be re-evaluating the criteria included in the proposed California Toxics Rule for selenium, mercury, PCP, and /or other pollutants, in response to concerns raised by the U. S. Fish & Wildlife Service. For its next triennial review, the Board should consider adopting water quality objectives for these constituents.*

Federal standards are applicable statewide. When changes occur, the Central Valley Regional Board will act consistent with statewide direction provided by the State Water Resources Control Board.

Mr. Scott Smith and Mr. Warren Gross, BSK & Associates, Fresno

41. *Exempt confined animal facilities from the requirement that new manure retention ponds be designed, constructed, and operated to ensure that the invert of the pond will be at least 5 feet above the highest elevation of underlying groundwater for facilities where it is shown that (1) the quality of underlying groundwater is poorer, for each constituent of concern, than that of the wastewater, and (2) that the discharge does not cause the poor quality ground [water] to adversely impact downgradient groundwater quality.*

Added as an issue on the priority list.